STIC Search Report
EIC 1700

STIC Database Tracking Number: 159671

TO: Elizabeth Wood
Location: 9D15
Art Unit : 1755
August 2, 2005

Case Serial Number: 10/600123

From: Usha Shrestha
Location: EIC 1700
REMSEN 4B28
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Search Notes

STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact ***the EIC searcher or contact***:

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- *I am an examiner in Workgroup:* ☐ *Example: 1713*
- *Relevant prior art **found**, search results used as follows:*

  ☐ 102 rejection

  ☐ 103 rejection

  ☐ Cited as being of interest.

  ☐ Helped examiner better understand the invention.

  ☐ Helped examiner better understand the state of the art in their technology.

  Types of relevant prior art found:

  ☐ Foreign Patent(s)

  ☐ Non-Patent Literature
  (journal articles, conference proceedings, new product announcements etc.)

- *Relevant prior art **not found:***

  ☐ Results verified the lack of relevant prior art (helped determine patentability).

  ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28

Smith, Teresa (ASRC)

From: Unknown@Unknown.com
Sent: Monday, July 18, 2005 2:17 PM
To: STIC-EIC1700
Subject: Generic form response

ResponseHeader=Commercial Database Search Request

AccessDB#= 159671

LogNumber=

Searcher=

SearcherPhone=

SearcherBranch=

MyDate=Mon Jul 18 14:15:59 EDT 2005

submitto=STIC-EIC1700@uspto.gov

Name=Elizabeth Wood

Empno=64786

Phone=571-272-1377

Artunit=1755

Office=REM 9 D 15

Serialnum=10/600,123

PatClass=502/214

Earliest=6/20/03

Format1=paper

Searchtopic=I would like to know if the formula for "catalytic activity index" as set forth in claim 1. can be located. Thanks.

Comments=

send=SEND

ABSTRACT OF THE INVENTION

The invention is directed to methods for protecting metalloaluminophosphate molecular sieves, particularly silicoaluminophosphate (SAPO) molecular sieves, from loss of catalytic activity due to contact with a gas containing water. The methods of the invention provide procedures that enable activated sieve to contact water vapor, within a certain range of time, temperature, and water partial pressure conditions, before the sieve becomes substantially deactivated.

Claims:

This listing of claims will replace the listing of the claims in the application.

Listing of Claims:

1. (Original) A method of protecting activated metalloaluminophosphate molecular sieve from loss of catalytic activity, comprising contacting the activated metalloaluminophosphate molecular sieve with a gas containing water at a temperature and water partial pressure effective to maintain a predetermined catalytic activity index, wherein the catalytic activity index is represented by the formula:

$$CAI = \exp(f(T) * f(PP_{water})^n * alpha * t)$$

wherein

t = time of contact of catalyst with water (hours)

T = temperature at contact (°C)

PP_{water} = Partial Pressure of water in contact gas (psia)

alpha = -0.071

n = 3.5

$f(T) = \exp(ea(1/(T + 273) - 1/(T_o + 273)))$

ea = -5500°K

T_o = 200°C

$f(PP_{water}) = (26.2 * PP_{water}/P_{sat} + 1.14) * 0.175,$ for T ≥ 180°C (453°K)

$f(PP_{water}) = ((26.2 + 0.272 * (180 - T)) * PP_{water}/P_{sat} + 1.14) * 0.175,$

for 180°C (453°K) > T ≥ 150°C (433°K)

P_{sat} = Saturation pressure of water at T (psia).

2. (Original) The method of claim 1, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas at a temperature and water partial pressure effective to maintain a catalytic activity index of at least 0.7.

3. (Original) The method of claim 2, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas at a temperature and water partial pressure effective to maintain a catalytic activity index of at least 0.8.

4. (Original) The method of claim 3, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas at a temperature and water partial pressure effective to maintain a catalytic activity index of at least 0.9.

5. (Original) The method of claim 1, wherein the gas has a relative water pressure of at least 0.0001 and contacts the activated molecular sieve at a temperature less than water critical temperature.

6. (Original) The method of claim 5, wherein the gas has a relative water pressure of at least 0.001.

7. (Original) The method of claim 6, wherein the gas has a relative water pressure of at least 0.01.

8. (Original) The method of claim 7, wherein the gas has a relative water pressure of at least 0.1.

9. (Original) The method of claim 1, wherein the gas contacts the activated molecular sieve at a temperature of from 150°C to 300°C.

10. (Original) The method of claim 1, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for not greater than 500 hours.

11. (Original) The method of claim 10, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas from 0.01 hour to 50 hours.

12. (Original) The method of claim 1, wherein the activated metalloaluminophosphate molecular sieve is a silicoaluminophosphate molecular sieve.

13. (Original) The method of claim 1, further comprising stopping contact of the activated metalloaluminophosphate molecular sieve with the gas and storing in an anhydrous environment.

14. (Withdrawn) The method of claim 1, further comprising stopping contact of the activated metalloaluminophosphate molecular sieve with the gas and contacting with an oxygenate to form an olefin product.

15. (Original) The method of claim 1, wherein the catalytic activity is catalytic activity in reaction processes selected from the group consisting of catalytic cracking, hydrocracking, dewaxing, olefin forming reactions, aromatics forming reactions, paraffin isomerization, olefin isomerization, paraffin hydroisomerization, olefin hydroisomerization, olefin oligomerization, olefin polymerization, reforming, alkylation, and disproportionation of aromatics.

16. (Original) The method of claim 1, wherein the activated molecular sieve is contacted so as to maintain an ethylene or propylene selectivity of at least 25 wt %.

17. (Original) A method of protecting catalytic activity of an activated metalloaluminophosphate molecular sieve in olefin forming reactions due to contact with water vapor, comprising contacting the activated metalloaluminophosphate molecular sieve with a gas for a time effective to maintain the activated metalloaluminophosphate molecular sieve at a catalytic activity index of at least 0.7 and at an ethylene or propylene selectivity of at least 25 wt %, wherein the gas is at a relative water pressure of from 0.0001 to 1.

18. (Original) The method of claim 17, wherein the gas contacts the activated molecular sieve at a temperature less than water critical temperature.

19. (Original) The method of claim 18, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for a time effective to maintain a catalytic activity index of at least 0.8.

20. (Original) ,The method of claim 19, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for a time effective to maintain a catalytic activity index of at least 0.9.

21. (Original) The method of claim 17, wherein the gas has a relative water pressure of at least 0.001.

22. (Original) The method of claim 21, wherein the gas has a relative water pressure of at least 0.01.

23. (Original) The method of claim 22, wherein the gas has a relative water pressure of at least 0.1.

24. (Original) The method of claim 17, wherein the gas contacts the activated molecular sieve at a temperature of from 150°C to 300°C.

25. (Original) The method of claim 24, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for not greater than 500 hours.

26. (Original) The method of claim 25, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas from 0.01 hour to 50 hours.

27. (Original) The method of claim 17, wherein the activated metalloaluminophosphate molecular sieve is a silicoaluminophosphate molecular sieve.

28. (Original) The method of claim 17, further comprising stopping contact of the activated metalloaluminophosphate molecular sieve with the gas and storing in an anhydrous environment.

29. (Withdrawn) The method of claim 17, further comprising stopping contact of the activated metalloaluminophosphate molecular sieve with the gas and contacting with an oxygenate to form an olefin product.

30. (Withdrawn) A process for forming olefin product from oxygenate feed, the process comprising the steps of:

a) contacting an activated metalloaluminophosphate molecular sieve with a gas containing water at conditions effective to maintain the activated sieve at a catalytic activity index of at least 0.7 and an ethylene or propylene selectivity of at least 25 wt %; and

b) contacting the water-contacted sieve with an oxygenate feed to form an olefin product, wherein the olefin product contains greater than 50 weight percent olefin, based on total weight of hydrocarbon produced.

31. (Withdrawn) The process of claim 30, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for a time effective to maintain a catalytic activity index of at least 0.8.

32. (Withdrawn) The process of claim 31, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for a time effective to maintain a catalytic activity index of at least 0.9.

33. (Withdrawn) The process of claim 30, wherein the gas has a relative water pressure of at least 0.0001.

34. (Withdrawn) The process of claim 33, wherein the gas has a relative water pressure of at least 0.001.

35. (Withdrawn) The process of claim 34, wherein the gas has a relative water pressure of at least 0.01.

36. (Withdrawn) The process of claim 35, wherein the gas has a relative water pressure of at least 0.1.

37. (Withdrawn) The process of claim 30, wherein the gas contacts the activated molecular sieve at at a temperature of from 150°C to 300°C.

38. (Withdrawn) The process of claim 30, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for not greater than 500 hours.

39. (Withdrawn) The process of claim 38, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas from 0.01 hour to 50 hours.

40. (Withdrawn) The process of claim 30, wherein the activated metalloaluminophosphate molecular sieve is a silicoaluminophosphate molecular sieve.

41. (Withdrawn) The process of claim 30, further comprising polymerizing olefin in the olefin product, in the presence of a polymerization catalyst system in a polymerization reactor, to produce one or more polymer products.

42. (Withdrawn) A process for converting oxygenate to an olefin product, the process comprising the steps of:

a) loading an activated metalloaluminophosphate molecular sieve into a reaction system;

b) contacting the activated metalloaluminophosphate molecular sieve loaded into the reaction system with a gas containing water at conditions effective to maintain the activated sieve at an ethylene or propylene selectivity effective to convert an oxygenate feed to an olefin product, wherein the olefin product contains greater than 50 weight percent olefin, based on total weight of hydrocarbon produced; and

c) contacting the water-contacted sieve with an oxygenate feed to form the olefin product.

43. (Withdrawn) The process of claim 42, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for a time effective to maintain a catalytic activity index of at least 0.7.

44. (Withdrawn) The process of claim 43, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for a time effective to maintain a catalytic activity index of at least 0.8.

45. (Withdrawn) The process of claim 44, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for a time effective to maintain a catalytic activity index of at least 0.9.

46. (Withdrawn) The process of claim 45, wherein the gas has a relative water pressure of at least 0.0001.

47. (Withdrawn) The process of claim 46, wherein the gas has a relative water pressure of at least 0.001.

48. (Withdrawn) The process of claim 47, wherein the gas has a relative water pressure of at least 0.01.

49. (Withdrawn) The process of claim 48, wherein the gas has a relative water pressure of at least 0.1.

50. (Withdrawn) The process of claim 42, wherein the gas contacts the activated molecular sievc at a temperature of from 150°C to 300°C.

51. (Withdrawn) The process of claim 42, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for not greater than 500 hours.

52. (Withdrawn) The process of claim 51, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas from 0.01 hour to 50 hours.

53. (Withdrawn) The process of claim 42, wherein the activated metalloaluminophosphate molecular sieve is a silicoaluminophosphate molecular sieve.

54. (Withdrawn) The process of claim 40, further comprising polymerizing olefin in the olefin product, in the presence of a polymerization catalyst system in a polymerization reactor, to produce one or more polymer products.

55. (Original) A method of activating metalloaluminophosphate molecular sieve, the method comprising the steps of:

a) providing a metalloaluminophosphate molecular sieve containing template;

b) calcining the metalloaluminophosphate molecular sieve in a calcination unit to remove the template;

c) sweeping gas through the calcination unit to cool the calcined metalloaluminophosphate molecular sieve, while maintaining the calcined metalloaluminophosphate molecular sieve at a catalytic activity index of at least 0.7, wherein the gas has a relative water pressure of at least 0.0001 and contacts the activated molecular sieve at a temperature less than water critical temperature.

56. (Original) The method of claim 55, wherein the activated metalloaluminophosphate molecular sieve is maintained at a catalytic activity index of at least 0.8.

57. (Original) The method of claim 56, wherein the activated metalloaluminophosphate molecular sieve is maintained at a catalytic activity index of at least 0.9.

58. (Original) The method of claim 55, wherein the gas has a relative water pressure of at least 0.001.

59. (Original) The method of claim 58, wherein the gas has a relative water pressure of at least 0.01.

60. (Original) The method of claim 59, wherein the gas has a relative water pressure of at least 0.1.

61. (Original) The method of claim 55, wherein the gas is at a temperature of from 150°C to 300°C.

62. (Original) The method of claim 55, wherein the gas is swept through the calcination unit for not greater than 500 hours.

63. (Original) The method of claim 62, wherein the gas is swept through the calcination unit from 0.01 hour to 50 hours.

64. (Original) The method of claim 55, wherein the activated metalloaluminophosphate molecular sieve is a silicoaluminophosphate molecular sieve.

65. (Original) The method of claim 55, further comprising removing the activated metalloaluminophosphate molecular sieve from the calcination unit and storing the removed molecular sieve in an anhydrous environment.

66. (Withdrawn) The method of claim 55, further comprising removing the activated metalloaluminophosphate molecular sieve from the calcination unit and contacting the removed molecular sieve with an oxygenate to form an olefin product.

67. (Withdrawn) The method of claim 66, further comprising polymerizing olefin in the olefin product, in the presence of a polymerization catalyst system in a polymerization reactor, to produce one or more polymer products.

68. (Original) The method of claim 55, wherein the catalytic activity is catalytic activity in reaction processes selected from the group consisting of catalytic cracking, hydrocracking, dewaxing, olefin forming reactions, aromatics forming reactions, paraffin isomerization, olefin isomerization, paraffin hydroisomerization, olefin hydroisomerization, olefin oligomerization, olefin polymerization, reforming, alkylation, and disproportionation of aromatics.

69. (Original) The method of claim 55, wherein the activated molecular sieve is contacted with the gas so as to maintain an ethylene or propylene selectivity of at least 25 wt %.

70. (Withdrawn) A method of starting-up an olefin forming reaction system, comprising the steps of:

a) sweeping gas through the reaction system to heat up the system, wherein the reaction system contains activated metalloaluminophosphate molecular sieve and the activated metalloaluminophosphate molecular sieve is maintained at a catalytic activity index of at least 0.7 while the system is at a temperature less than water critical temperature; and

b) contacting the activated metalloaluminophosphate molecular sieve in the heated up system with an oxygenate to form an olefin product.

71. (Withdrawn) The method of claim 70, wherein the activated metalloaluminophosphate molecular sieve is maintained at a catalytic activity index of at least 0.8 while the system is at a temperature less than water critical temperature.

72. (Withdrawn) The method of claim 71, wherein the activated metalloaluminophosphate molecular sieve is maintained at a catalytic activity index of at least 0.9 while the system is at a temperature less than water critical temperature.

73. (Withdrawn) The method of claim 70, wherein the gas has a relative water pressure of at least 0.0001.

74. (Withdrawn) The method of claim 73, wherein the gas has a relative water pressure of at least 0.001.

75. (Withdrawn) The method of claim 74, wherein the gas has a relative water pressure of at least 0.01.

76. (Withdrawn) The method of claim 75, wherein the gas has a relative water pressure of at least 0.1.

77. (Withdrawn) The method of claim 70, wherein the system is at a temperature of from 150°C to 300°C.

78. (Withdrawn) The method of claim 70, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for not greater than 500 hours while the system is at a temperature less than critical water temperature.

79. (Withdrawn) The method of claim 78, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas from 0.01 hour to 50 hours while the system is at a temperature less than critical water temperature.

80. (Withdrawn) The method of claim 70, wherein the activated metalloaluminophosphate molecular sieve is a silicoaluminophosphate molecular sieve.

81. (Withdrawn) The method of claim 70, further comprising polymerizing olefin in the olefin product, in the presence of a polymerization catalyst system in a polymerization reactor, to produce one or more polymer products.

82. (Withdrawn) The method of claim 70, wherein the catalytic activity is catalytic activity in reaction processes selected from the group consisting of catalytic cracking, hydrocracking, dewaxing, olefin forming reactions, aromatics forming reactions, paraffin isomerization, olefin isomerization, paraffin hydroisomerization, olefin hydroisomerization, olefin oligomerization, olefin polymerization, reforming, alkylation, and disproportionation of aromatics.

83. (Withdrawn) The method of claim 70, wherein the activated molecular sieve is maintained at an ethylene or propylene selectivity of at least 25 wt % while the system is at a temperature less than water critical temperature.

84. (Withdrawn) A method of shutting-down an olefin forming reaction system, comprising the steps of:

a) contacting an activated metalloaluminophosphate molecular sieve in a reaction system with an oxygenate to form an olefin product;

b) stopping contact of the activated metalloaluminophosphate molecular sieve with the oxygenate; and

c) sweeping gas through the reaction system to cool down the system, wherein the activated metalloaluminophosphate molecular sieve is maintained at a catalytic activity index of at least 0.7 while the system is at a temperature less than water critical temperature.

85. (Withdrawn) The method of claim 84, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for a time effective to maintain a catalytic activity index of at least 0.8.

86. (Withdrawn) The method of claim 85, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for a time effective to maintain a catalytic activity index of at least 0.9.

87. (Withdrawn) The method of claim 84, wherein the gas has a relative water pressure of at least 0.0001.

88. (Withdrawn) The method of claim 87, wherein the gas has a relative water pressure of at least 0.001.

89. (Withdrawn) The method of claim 88, wherein the gas has a relative water pressure of at least 0.01.

90. (Withdrawn) The method of claim 89, wherein the gas has a relative water pressure of at least 0.1.

91. (Withdrawn) The method of claim 84, wherein the system is at a temperature of from 150°C to 300°C.

92. (Withdrawn) The method of claim 84, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for not greater than 500 hours while the system is at a temperature less than critical water temperature.

93. (Withdrawn) The method of claim 92, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas from 0.01 hour to 50 hours while the system is at a temperature less than critical water temperature.

94. (Withdrawn) The method of claim 84, wherein the activated metalloaluminophosphate molecular sieve is a silicoaluminophosphate molecular sieve.

95. (Withdrawn) The method of claim 84, wherein the catalytic activity is catalytic activity in reaction processes selected from the group consisting of catalytic cracking, hydrocracking, dewaxing, olefin forming reactions, aromatics forming reactions, paraffin isomerization, olefin isomerization, paraffin hydroisomerization, olefin hydroisomerization, olefin oligomerization, olefin polymerization, reforming, alkylation, and disproportionation of aromatics.

96. (Withdrawn) The method of claim 84, wherein the activated molecular sieve is further maintained at an ethylene or propylene selectivity of at least 25 wt %.

97. (Original) A method of protecting catalytic activity of an activated metalloaluminophosphate molecular sieve in olefin forming reactions due to contact with water vapor, comprising contacting the activated metalloaluminophosphate molecular sieve with a gas containing water to effectively maintain the activated metalloaluminophosphate molecular sieve at a predetermined catalytic activity index, wherein the activated metalloaluminophosphate molecular sieve contains Si and Al at a Si/Al ratio of not greater than 0.5.

98. (Original) The method of claim 97, wherein the activated metalloaluminophosphate molecular sieve contains Si and Al at a Si/Al ratio of not greater than 0.3.

99. (Original) The method of claim 98, wherein the activated metalloaluminophosphate molecular sieve contains Si and Al at a Si/Al ratio of not greater than 0.2.

100. (Original) The method of claim 99, wherein the activated metalloaluminophosphate molecular sieve contains Si and Al at a Si/Al ratio of not greater than 0.15.

101. (Original) The method of claim 100, wherein the activated metalloaluminophosphate molecular sieve contains Si and Al at a Si/Al ratio of not greater than 0.1.

102. (Original) The method of claim 97, wherein the metalloaluminophosphate molecular sieves contain Si and Al at a ratio of at least 0.005.

103. (Original) The method of claim 102, wherein the metalloaluminophosphate molecular sieves contain Si and Al at a ratio of at least 0.01.

104. (Original) The method of claim 103, wherein the metalloaluminophosphate molecular sieves contain Si and Al at a ratio of at least 0.02.

105. (Original) A method of protecting activated metalloaluminophosphate molecular sieve from loss of catalytic activity, comprising contacting the activated metalloaluminophosphate molecular sieve with a gas containing water at a temperature above water critical temperature.

106. (Withdrawn) A method of starting-up an olefin forming reaction system, comprising the steps of:

a) sweeping gas through the reaction system to heat up the system, with the reaction system containing activated metalloaluminophosphate molecular sieve, wherein the activated molecular sieve is maintained at a temperature above water critical temperature; and

b) conacting the activated metalloaluminophosphate molecular sieve in the heated up system with an oxygenate to form an olefin product.

107. (Withdrawn) A method of shutting-down an olefin forming reaction system, comprising the steps of:

(a) contacting an activated metalloaluminophosphate molecular sieve in a reaction system with an oxygenate to form an olefin product;

(b) stopping contact of the activated metalloaluminophosphate molecular sieve with the oxygenate;

(c) sweeping a gas through the reaction system to cool down the system, while the activated metalloaluminophosphate molecular sieve is maintained at a temperature above water critical temperature.

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=> d his ful

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     FILE 'HCAPLUS' ENTERED AT 11:04:43 ON 01 AUG 2005
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L4            0 SEA ABB=ON  PLU=ON  L2 AND CATALYTIC(A)ACTIVITY(A)INDEX
                ?
L5           77 SEA ABB=ON  PLU=ON  L2 AND CATALY?
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L8            3 SEA ABB=ON  PLU=ON  L7 AND FORMUL?
                D SCAN HIT
                D L8 ABS
L9           28 SEA ABB=ON  PLU=ON  CATALY?(A)ACTIV?(A)INDEX?
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                D SCAN
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=> d que l27
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L2          954 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L1
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L8             3 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L7 AND FORMUL?
L9            28 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CATALY?(A)ACTIV?(A)IND
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                 METALLOALUMINOPHOSPHATE OR ZEOLIT?)
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                 SILICOALMINOPHOSPHATE OR METALLOALUMINOPHOSPHATE OR
                 ZEOLIT?)
L12         1962 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CATALY?(A)ACTIV?(A)IND
                 EX? OR CAI
L13            9 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L12 AND (SAPO? OR
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                 PHOSPHATE OR METALLOALUMINOPHOSPHATE OR ZEOLIT?)
L19         6377 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L16(L)CATALY?(2A)ACTIV
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L20          312 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19(L)SIEVE?
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L27           27 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L8 OR L10 OR L11 OR
                 L13 OR L21 OR L22 OR L24 OR L26


=> fil hcap
FILE 'HCAPLUS' ENTERED AT 12:51:11 ON 02 AUG 2005


=> d l19 2-27 ibib abs hitstr hitind

L19  ANSWER 1 OF 27  HCAPLUS  COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER:         2005:140878  HCAPLUS
DOCUMENT NUMBER:          142:263633
TITLE:                    Process for starting up a reaction system
                          comprising heating the system, adding
                          metalloaluminophosphate catalyst, heating the
                          catalyst, and contacting the heated catalyst
                          with feed.
INVENTOR(S):              Beech, James H.; Walter, Richard E.; Fung,
                          Shun Chong; Loezos, Peter N.; Janssen, Marcel
                          Johannes; Martens, Luc Roger Marc; Clem,
                          Kenneth Ray; Vaughn, Stephen Neil
PATENT ASSIGNEE(S):       USA
SOURCE:                   U.S. Pat. Appl. Publ., 25 pp.
                          CODEN: USXXCO
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE       APPLICATION NO.         DATE
     ---------------     ----   --------   --------------------
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     US 2005038306        A1    20050217   US 2003-641718
                                                                   2003
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                                                               0815
WO 2005019388        A1    20050303   WO 2004-US20770
                                                               2004
                                                               0628
    W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,
        CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG,
        ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,
        KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
        MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL,
        PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,
        TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
    RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
        ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH,
        CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
        MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI,
        CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
PRIORITY APPLN. INFO.:                    US 2003-641718      A
                                                               2003
                                                               0815
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AB A process for starting up a catalytic reaction system comprises heating the system, adding a **metalloaluminophosphate** catalyst, heating the catalyst, and contacting the heated catalyst with feed. This method **protects** mol. **sieves** against loss of **catalytic activity** due to contact with water mols. Apparatus diagrams are given.

IC ICM C07C002-64
ICS C10G011-00; C10G047-02; C10G035-04; C07C005-22; C07C001-20; C07C002-02

INCL 585446000; 585470000; 585477000; 585502000; 585639000; 585643000; 585664000; 585671000; 585708000; 585709000

CC 47-3 (Apparatus and Plant Equipment)
Section cross-reference(s): 51

L19 ANSWER 2 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:140423 HCAPLUS
DOCUMENT NUMBER: 142:222317
TITLE: Method of shutting down a reaction system
INVENTOR(S): Beech, James H.; Walter, Richard E.; Fung, Shun Chong; Loezos, Peter N.; Janssen, Marcel Johannes; Vaughn, Stephen Neil
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 25 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005035027	A1	20050217	US 2003-641447	2003 0815
WO 2005019389	A1	20050303	WO 2004-US20771	2004 0628

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2003-641447 A 2003 0815

AB A method is disclosed for shutting down reaction systems containing a reactor and a regenerator. The reaction systems are those that use catalysts containing mol. **sieves**, particularly **metalloaluminophosphate** mol. **sieves**, especially **metalloaluminophosphate** mol. **sieves** which are susceptible to loss of **catalytic activity** due to contact with H2O mols. The method involves (1) stopping of a hydrocarbon feed from contacting the catalyst in the reactor, (2) injecting a feed replacement gas (e.g., steam, N2, CO2, flue gas) into the reactor at ≥300° during or after stopping the flow of the hydrocarbon feed to the reactor, (3) injecting an O2-containing gas (e.g., air) into the regenerator to burn C deposits on the catalyst, and (4) unloading of the catalyst from the regenerator to **protect** against loss of **catalytic activity** that can occur due to contact with H2O mols.

IC ICM C10G035-10

INCL 208154000

CC 51-6 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 45

IT Petroleum refining catalysts
(decoking and unloading during shutdown of catalytic reaction system for **protection** against loss of catalytic activity)

L19 ANSWER 3 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:1127163 HCAPLUS
DOCUMENT NUMBER: 142:58690
TITLE: Maintaining **zeolitic** molecular **sieve catalytic activity** under water vapor conditions
INVENTOR(S): Loezos, Peter N.; Fung, Shun Chong; Vaughn, Stephen Neil; Clem, Kenneth Ray; Beech, James H.; Coute, Nicolas P.; Janssen, Marcel Johannes; Martens, Luc Roger Marc; Strohmaier, Karl G.
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 22 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

my case

US 2004260140	A1	20041223	US 2003-600123	20030620
WO 2005000468	A1	20050106	WO 2004-US17611	20040604

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2003-600123 A 20030620

AB Methods for **protecting metalloaluminophosphate zeolitic** mol. **sieves**, particularly silicoaluminophosphate (**SAPO**) **zeolites**, from loss of **catalytic activity** (e.g., methanol-to-olefin conversion) by contacting the activated catalyst with a gas containing water are described. These methods provide procedures that enable activated **zeolitic** mol. **sieves** to contact water vapor, within a certain range of time, temperature, and water partial pressure conditions, before the **sieve** becomes substantially deactivated.

IC ICM C07C001-00
ICS B01J029-84; B01J029-85

INCL 585951000; 585639000; 502208000; 502214000

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 48, 67

IT Alkenes, preparation
(C2-5; maintaining **zeolitic** mol. **sieve catalytic activity** under water vapor conditions)

IT Process control
(in maintaining **zeolitic** mol. **sieve catalytic activity** under water vapor conditions)

IT Alkylation catalysts
Cracking catalysts
Disproportionation catalysts
Hydrocracking catalysts
Isomerization catalysts
Petroleum reforming catalysts
Polymerization catalysts
(maintaining **zeolitic** mol. **sieve catalytic activity** under water vapor conditions)

IT Silicoaluminophosphate **zeolites**
(maintaining **zeolitic** mol. **sieve catalytic activity** under water vapor

conditions)
IT Aromatic hydrocarbons, reactions
(maintaining **zeolitic** mol. **sieve** **catalytic activity** under water vapor conditions)
IT Catalysts
(methanol-to-olefins process; maintaining **zeolitic** mol. **sieve catalytic activity** under water vapor conditions)
IT Polymerization catalysts
(oligomerization; maintaining **zeolitic** mol. **sieve catalytic activity** under water vapor conditions)
IT Hydrocarbons, reactions
(oxy; maintaining **zeolitic** mol. **sieve** **catalytic activity** under water vapor conditions)
IT Isomerization
(reductive, catalysts; maintaining **zeolitic** mol. **sieve catalytic activity** under water vapor conditions)
IT Isomerization catalysts
(reductive; maintaining **zeolitic** mol. **sieve** **catalytic activity** under water vapor conditions)
IT 7732-18-5, Water, processes
(maintaining **zeolitic** mol. **sieve** **catalytic activity** under water vapor conditions)
IT 67-56-1, Methanol, reactions
(maintaining **zeolitic** mol. **sieve** **catalytic activity** under water vapor conditions)

L19 ANSWER 4 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:1080675 HCAPLUS
DOCUMENT NUMBER: 142:28830
TITLE: Method of **protecting SAPO** molecular **sieve** from loss of **catalytic activity**
INVENTOR(S): Fung, Shun Chong; Vaughn, Stephen Neil; Janssen, Marcel Johannes; Martens, Luc Roger Marc; Clem, Kenneth Ray
PATENT ASSIGNEE(S): Exxonmobil Chemical Patents Inc., USA
SOURCE: U.S. Pat. Appl. Publ., 19 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004254068	A1	20041216	US 2003-461621	2003 0613
US 6897179	B2	20050524		
WO 2005000465	A1	20050106	WO 2004-US15794	2004

0520

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2003-461621 A 2003 0613

AB Disclosed is a method of **protecting** the loss of **catalytic activity** of **metalloaluminophosphate** mol. **sieve**, particularly a **SAPO** mol. **sieve**, from contact with moisture. The method involves heating the **metalloaluminophosphate** mol. **sieve** so as to remove template, and provide a mol. **sieve** in sufficiently dry form for storage.

IC ICM B01J027-182

INCL 502208000; 502214000

CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)

ST method **protecting** SAPO zeolite loss catalytic activity

IT Aluminophosphate **zeolites**
(**metalloaluminophosphate**; method of **protecting SAPO** mol. **sieve** from loss of **catalytic activity**)

IT Air
Drying
Flue gases
Heating
Water vapor
(method of **protecting SAPO** mol. **sieve** from loss of **catalytic activity**)

IT Silicoaluminophosphate **zeolites**
(method of **protecting SAPO** mol. **sieve** from loss of **catalytic activity**)

IT Amines, processes
Quaternary ammonium compounds, processes
(method of **protecting SAPO** mol. **sieve** from loss of **catalytic activity**)

IT 75-31-0, Isopropylamine, processes 108-91-8, Cyclohexylamine, processes 110-86-1, Pyridine, processes 110-89-4, Piperidine, processes 110-91-8, Morpholine, processes 121-44-8, Triethylamine, processes 142-84-7, Dipropylamine 1003-03-8, Cyclopentylamine 3218-02-8, Aminomethyl cyclohexane 7440-59-7, Helium, processes 7727-37-9, Nitrogen, processes 7732-18-5, Water, processes
(method of **protecting SAPO** mol. **sieve** from loss of **catalytic activity**)

L19 ANSWER 5 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:472471 HCAPLUS
DOCUMENT NUMBER: 139:69276
TITLE: Preparation of thienopyrimidines as mitotic kinesin inhibitors for the treatment of cancer
INVENTOR(S): Fraley, Mark E.; Hartman, George D.; Hoffman, William F.
PATENT ASSIGNEE(S): Merck & Co., Inc., USA
SOURCE: PCT Int. Appl., 157 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003050064	A2	20030619	WO 2002-US38417	20021202
WO 2003050064	A3	20031016		
WO 2003050064	B1	20031218		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

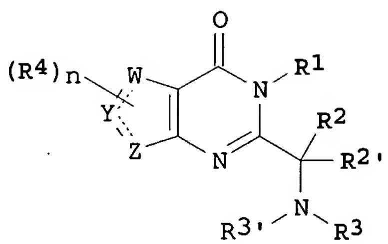
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CA 2467722	AA	20030619	CA 2002-2467722	20021202
EP 1463733	A2	20041006	EP 2002-804714	20021202

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
JP 2005516007	T2	20050602	JP 2003-551092		20021202
PRIORITY APPLN. INFO.:			US 2001-338383P	P	20011206
			WO 2002-US38417	W	20021202

OTHER SOURCE(S): MARPAT 139:69276

GI



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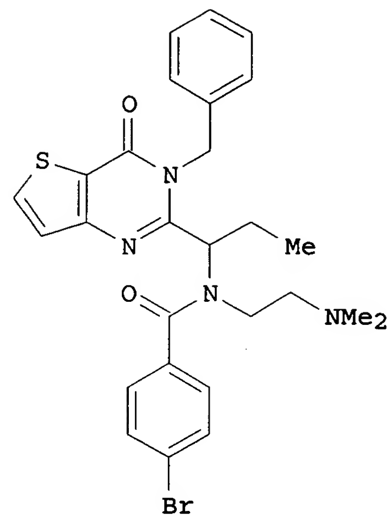

II

AB Title compds. I [wherein one of W, Y, or Z = S and the other 2 = CH; R1 = H, perfluoroalkyl, or (un)substituted (cyclo)alkyl, alkenyl, alkynyl, aryl, aralkyl, or heterocyclyl; R2, R2', R3, and R3' = independently H, CO2H, perfluoroalkyl, SO2NR7R8, or (un)substituted (CO)aOb-(cyclo)alkyl, (CO)aOb-alkenyl, (CO)aOb-alkynyl, (CO)aOb-aryl, (CO)aOb-heterocyclyl, or SO2-alkyl; or CR2R2' = (un)substituted (hetero)alkyl; or CR3R3' = (un)substituted heteroalkyl; R4 = halo, OH, CN, CO2H, perfluoroalkyl(oxy), SO2NR7R8, or (un)substituted (CO)aOb-(cyclo)alkyl, (CO)aOb-alkenyl, (CO)aOb-alkynyl, (CO)aOb-aryl, (CO)aOb-heterocyclyl, or SO2-alkyl; R7 and R8 = independently H, SO2Ra, CON(Rb)2, or (un)substituted (cyclo)alkyl, alkenyl, alkynyl, aryl, heterocyclyl, CO-Ob-(cyclo)alkyl, CO-Ob-alkenyl, CO-Ob-alkynyl, CO-Ob-aryl, or CO-Ob-heterocyclyl; or NR7R8 = (un)substituted heterocyclyl; Ra = (cyclo)alkyl or heterocyclyl; Rb = H, (cyclo)alkyl, aryl, heterocyclyl, CO2-alkyl, CO-alkyl, or SO2Ra; a and b = independently 0-1; n = 0-2; and pharmaceutically acceptable salts or stereoisomers thereof] were prepared for inhibiting KSP kinesin. For example, amidation of Me 3-aminothiophene-2-carboxylate with butyryl chloride afforded Me 3-(butyrylamino)thiophene-2-carboxylate, which was **sapond** . to give the acid. Amidation with benzylamine, followed by cyclization provided 3-benzyl-2-propylthieno[3,2-d]pyrimidin-4(3H)-one. Bromination, coupling with N,N-dimethylethylenediamine, and reaction with 4-bromobenzoyl chloride gave the N-[1-(thienopyrimidinyl)propyl]benzamide II. The latter inhibited human poly-histidine tagged KSP motor domain with an IC50 value of ≤50 μM. Thus, I and pharmaceutical compns. thereof are useful for treating cellular proliferative diseases associated with KSP kinesin activity, such as cancer (no data). Preparation of thienopyrimidine kinesin inhibitors from thiophenes, amines, and acid chlorides.

IC ICM C07C

CC 28-16 (Heterocyclic Compounds (More Than One Hetero Atom))
Section cross-reference(s): 1, 63

IT 50-35-1, Thalidomide 10540-29-1, Tamoxifen 33069-62-4, Paclitaxel 37300-21-3, Pentosan polysulfate 84449-90-1,

Raloxifene 86090-08-6, Angiostatin 99519-84-3, **CAI**
117048-59-6, Combretastatin A-4 132746-81-7 144494-65-5,
Tirofiban 148717-90-2, Squalamine 180288-69-1, Trastuzumab
(combination therapy; preparation and compns. of thienopyrimidine kinesin inhibitors for treatment of cancer)

L19 ANSWER 6 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:881090 HCAPLUS
DOCUMENT NUMBER: 134:44373
TITLE: Controlled thermal decomposition of templates for synthesis of modified silicoaluminophosphate and molecular sieve catalysts
INVENTOR(S): Fung, Shun C.; Janssen, Marcel J. G.; Vaughn, Stephen N.; Mertens, Machteld M.; Schweizer, Albert E.; Martens, Luc R. M.; Hall, Richard B.; Mortier, Wilfried J.; Searle, Ronald G.; Xiong, Yi-Gang
PATENT ASSIGNEE(S): Exxon Chemical Patents Inc., USA
SOURCE: PCT Int. Appl., 36 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000075072	A1	20001214	WO 2000-US15453	20000605
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
CA 2374250	AA	20001214	CA 2000-2374250	20000605
BR 2000011422	A	20020326	BR 2000-11422	20000605
EP 1192105	A1	20020403	EP 2000-938150	20000605
EP 1192105	B1	20030827		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2003501241	T2	20030114	JP 2001-501558	20000605
AT 248127	E	20030915	AT 2000-938150	20000605

AU 770995	B2	20040311	AU 2000-53231	2000 0605
ES 2203484	T3	20040416	ES 2000-938150	2000 0605
TW 593144	B	20040621	TW 2000-89111081	2000 0902
ZA 2001009371	A	20020717	ZA 2001-9371	2001 1114
NO 2001005936	A	20011204	NO 2001-5936	2001 1204
PRIORITY APPLN. INFO.:			US 1999-137997P P	1999 0607
			WO 2000-US15453 W	2000 0605

AB Modified mol. **sieves**, especially silicoaluminophosphate **zeolites**, are prepared by heating a template-containing mol. **sieve** (e.g., at 200-800°) to remove a portion of the template from the mol. **sieve**, followed by cooling the heated mol. **sieve** to leave a residue of template, or the carbonaceous residue of the template, to cover the catalytic sites within the mol. **sieve.** This modified mol. **sieve** can then be combined with a binder, in which 10-90 (most preferably 30-70) volume% of the microporous structure is occupied by the template or template residue, and the catalyst has a Davison **Index** of ≤30 (most preferably ≤10). Suitable modified mol. **sieves** include **SAPO**-5, **SAPO**-8, **SAPO**-11, **SAPO**-16, **SAPO**-18, **SAPO**-20, **SAPO**-31, **SAPO**-34, **SAPO**-35, **SAPO**-36, **SAPO**-37, **SAPO**-40, **SAPO**-41, **SAPO**-42, **SAPO**-44, **SAPO**-47, and **SAPO**-56. Suitable templates include tetraethylammonium hydroxide, cyclopentylamine, aminomethylcyclohexane, piperidine, triethylamine, cyclohexylamine, triethylhydroxyethylamine, morpholine, dipropylamine, pyridine, and isopropylamine. The **SAPO** compns. have **catalytic activity** in conversion of oxygen-containing compds. (i.e., "oxygenate" feedstocks) to olefins, and in olefin polymerization

no

IC ICM C01B037-00
ICS C01B039-02; B01J029-04; C07C001-00
CC 51-11 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 35
REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 7 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:881062 HCAPLUS
DOCUMENT NUMBER: 134:44372
TITLE: **Protecting catalytic activity** of a **SAPO** molecular

sieve

INVENTOR(S): Janssen, Marcel J. G.; Van Oorschot, Cornelius W. M.; Fung, Shun C.; Martens, Luc R. M.; Mortier, Wilfried J.; Searle, Ronald G.; Mertens, Machteld M.; Vaughn, Stephen N.
PATENT ASSIGNEE(S): Exxon Chemical Patents Inc., USA
SOURCE: PCT Int. Appl., 37 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000074848	A1	20001214	WO 2000-US15468	20000605
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6316683	B1	20011113	US 1999-391770	19990908
CA 2371102	AA	20001214	CA 2000-2371102	20000605
BR 2000011682	A	20020305	BR 2000-11682	20000605
EP 1192003	A1	20020403	EP 2000-939575	20000605
EP 1192003	B1	20041215		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
EP 1369177	A1	20031210	EP 2003-20750	20000605
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY				
CN 1131109	B	20031217	CN 2000-808614	20000605
CN 1493403	A	20040505	CN 2003-155774	20000605
AU 772744	B2	20040506	AU 2000-54645	20000605
AU 2000054645	A5	20001228		
EP 1441022	A1	20040728	EP 2004-7379	

				2000 0605
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY				
AT 284755	E	20050115	AT 2000-939575	2000 0605
ES 2233397	T3	20050616	ES 2000-939575	2000 0605
US 2001020119	A1	20010906	US 2001-760289	2001 0112
US 6455748	B2	20020924		
NO 2001005937	A	20011204	NO 2001-5937	2001 1204
ZA 2001010056	A	20021113	ZA 2001-10056	2001 1206
US 2002198427	A1	20021226	US 2002-206574	2002 0726
US 2004015030	A1	20040122	US 2003-615753	2003 0709

PRIORITY APPLN. INFO.:	US 1999-137933P	P	1999 0607
	US 1999-391770	A3	1999 0908
	EP 2000-939575	A3	2000 0605
	WO 2000-US15468	W	2000 0605
	US 2001-760289	A3	2001 0112
	US 2002-206574	A1	2002 0726

AB This invention is directed to a method of making an olefin product from an oxygenate feedstock and a method of **protecting** catalytic activity of a silicoaluminophosphate mol. sieve. The methods comprise providing a silicoaluminophosphate mol. sieve having catalytic sites within the mol. sieve and contacting the sieve with an oxygenate feedstock under conditions effective to produce an olefin product, wherein the silicoaluminophosphate mol. sieve contacting the oxygenate feedstock has a methanol uptake **index** of at least 0.15.

IC ICM B01J029-85

ICS C07C001-20; C07C011-02; C10G003-00
CC 51-11 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 67
ST **SAPO zeolite** catalyst olefin manuf;
silicoaluminophosphate mol **sieve catalytic**
activity shield
IT Alcohols, reactions
(C4-20; oxygenate; **protecting catalytic**
activity of a **SAPO** mol. **sieve**)
IT Aromatic hydrocarbons, uses
(C6-30; **protecting catalytic**
activity of a **SAPO** mol. **sieve**)
IT Silicoaluminophosphate **zeolites**
(**protecting catalytic activity** of
a **SAPO** mol. **sieve**)
IT Alkanes, uses
(**protecting catalytic activity** of
a **SAPO** mol. **sieve**)
IT Cycloalkanes
(**protecting catalytic activity** of
a **SAPO** mol. **sieve**)
IT 50-00-0, Formaldehyde, reactions 60-29-7, Diethyl ether,
reactions 64-17-5, Ethanol, reactions 64-19-7, Acetic acid,
reactions 67-56-1, Methanol, reactions 67-63-0, Isopropanol,
reactions 67-64-1, Dimethyl ketone, reactions 71-23-8,
Propanol, reactions 108-20-3, Di-isopropyl ether 115-10-6,
Dimethyl ether 540-67-0, Methylethylether 616-38-6, Dimethyl
carbonate
(oxygenate; **protecting catalytic**
activity of a **SAPO** mol. **sieve**)
IT 74-85-1P, Ethylene, preparation 115-07-1P, Propylene,
preparation
(**protecting catalytic activity** of
a **SAPO** mol. **sieve**)
IT 124-38-9, Carbon dioxide, uses 630-08-0, Carbon monoxide, uses
1333-74-0, Hydrogen, uses 7440-37-1, Argon, uses 7440-59-7,
Helium, uses 7727-37-9, Nitrogen, uses 7782-44-7, Oxygen, uses
(**protecting catalytic activity** of
a **SAPO** mol. **sieve**)
IT 66-40-0D, Tetraethyl ammonium, salts 75-31-0, Isopropylamine,
reactions 108-91-8, Cyclohexylamine, reactions 110-86-1,
Pyridine, reactions 110-89-4, Piperidine, reactions 110-91-8,
Morpholine, reactions 121-44-8, Triethylamine, reactions
142-84-7, Dipropylamine 302-61-4D, salts 1003-03-8,
Cyclopentylamine 3218-02-8, Aminomethyl cyclohexane
(template; **protecting catalytic**
activity of a **SAPO** mol. **sieve**)
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L19 ANSWER 8 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1999:704835 HCAPLUS
DOCUMENT NUMBER: 131:301206
TITLE: Synthesis of ECR-40 as large pore
aluminophosphate or substituted
aluminophosphate zeolite
INVENTOR(S): Vaughan, David E. W.
PATENT ASSIGNEE(S): Exxon Research and Engineering Co., USA
SOURCE: U.S., 4 pp.

CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5976491	A	19991102	US 1998-169653	19981009
CA 2345254	AA	20000420	CA 1999-2345254	19991005
WO 2000021884	A1	20000420	WO 1999-US23203	19991005

W: AL, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GE, HR, HU, ID, IL, IN, IS, JP, KP, KR, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, SL, TR, TT, UA, UZ, VN, YU, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1135330	A1	20010926	EP 1999-954751	19991005

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002527328	T2	20020827	JP 2000-575797	19991005
ZA 2001002279	A	20020619	ZA 2001-2279	20010319

PRIORITY APPLN. INFO.: US 1998-169653 A 19981009
WO 1999-US23203 W 19991005

AB A large-pore aluminophosphate or substituted aluminophosphate zeolite, ECR-40, is synthesized with the general **formula** aR:MxAlyPzO2, where R is an organic template, a=0-0.4, x=0-0.4, y=0.35-0.5, z=0.25-0.5, and M is Si, Ga, Ge, Co, Ni, Zn, Fe, V, Ti or their mixts. The zeolite is prepared hydrothermally using oxides in the form of a pre-dried amorphous gel, e.g., a **SAPO** gel, and an organic templating agent, e.g., bis(2-hydroxyethyl)dimethyl ammonium hydroxide. The low-acidity zeolites can be used as adsorbents and **catalysts.**

IT **247178-06-9P**, Aluminum oxide phosphate silicate (Al0.49O0.1(PO4)0.37(SiO3)0.14) **247178-07-0P**, Aluminum oxide phosphate silicide (Al0.49O0.68(PO4)0.33Si0.28)
(synthesis of ECR-40 as large pore substituted aluminophosphate zeolite)

RN 247178-06-9 HCAPLUS

CN Aluminum oxide phosphate silicate (Al0.49O0.1(PO4)0.37(SiO3)0.14) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	0.1	17778-80-2
O3Si	0.14	15593-90-5
O4P	0.37	14265-44-2
Al	0.49	7429-90-5

RN 247178-07-0 HCAPLUS
CN Aluminum oxide phosphate silicide (Al0.49O0.68(PO4)0.33Si0.28) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	0.68	17778-80-2
O4P	0.33	14265-44-2
Si	0.28	7440-21-3
Al	0.49	7429-90-5

IC ICM C01B037-04
ICS C01B037-06; C01B037-08
INCL 423718000
CC 49-4 (Industrial Inorganic Chemicals)
Section cross-reference(s): 51, 67
IT **247178-06-9P**, Aluminum oxide phosphate silicate (Al0.49O0.1(PO4)0.37(SiO3)0.14) **247178-07-0P**, Aluminum oxide phosphate silicide (Al0.49O0.68(PO4)0.33Si0.28)
(synthesis of ECR-40 as large pore substituted aluminophosphate zeolite)
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 9 OF 27 HCAPLUS
ACCESSION NUMBER: 1998:690135 HCAPLUS
DOCUMENT NUMBER: 130:84184
TITLE: Progressive alteration in CV3 chondrites: more evidence for asteroidal alteration
AUTHOR(S): Krot, Alexander N.; Petaev, Michael I.; Scott, Edward R. D.; Choi, Byeon-Gak; Zolensky, Michael E.; Keil, Klaus
CORPORATE SOURCE: Hawaii Institute of Geophysics and Planetology, School of Ocean and Earth Science and Technology, University of Hawaii at Manoa, Honolulu, HI, 96822, USA
SOURCE: Meteoritics & Planetary Science (1998), 33(5), 1065-1085
CODEN: MPSCFY; ISSN: 1086-9379
PUBLISHER: Meteoritical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The oxidized CV3 chondrites can be divided into two major subgroups or lithologies, Bali-like (CV3oxB) and Allende-like (CV3oxA), in which chondrules, calcium-aluminum-rich inclusions (**CAIs**) and matrixes show characteristic alteration features. The CV3oxB lithol. is present in Bali, Kaba, parts of

the Mokoia breccia and, possibly, in Grosnaja and Allan Hills (ALH) 85006. It is characterized by the presence of the secondary low-Ca phyllosilicates (**saponite** and sodium phlogopite), magnetite, Ni-rich sulfides, fayalite (Fa>90), Ca-Fe-rich pyroxenes (Fs10-50Wo45-50) and andradite. Phyllosilicates replace primary Ca-rich minerals in chondrules and **CAIs**, which suggests mobilization of Ca during aqueous alteration. Magnetite nodules are replaced to various degrees by fayalite, Ca-Fe-rich pyroxenes and minor andradite. Fayalite veins crosscut fine-grained rims around chondrules and extend into the matrix. Thermodn. anal. of the observed reactions indicates that they could have occurred at relatively low temps. (<300°C) in the presence of aqueous solns. Oxygen isotopic compns. of the coexisting magnetite and fayalite plot close to the terrestrial fractionation line with large Δ18Ofayalite-magnetite fractionation (.apprx.20.permill.). Phyllosilicates, magnetite, fayalite, Ca-Fe-rich pyroxenes and andradite formed at relatively low temps. (<300°C) by fluid-rock interaction in an asteroidal environment. Secondary fayalite and phyllosilicates are virtually absent in chondrules and **CAIs** in the CV3oxA lithol., which is present in Allende and its dark inclusions, Axtell, ALHA81258, ALH 84028, Lewis Cliff (LEW) 86006, and parts of the Mokoia and Vigarano breccias. Instead secondary nepheline, sodalite, and fayalitic olivine are common. Fayalitic olivine in chondrules replaces low-Ca pyroxenes and rims and veins forsterite grains; it also forms coarse lath-shaped grains in matrix. Secondary Ca-Fe-rich pyroxenes are abundant. We infer that the CV3oxA lithol. experienced alteration at higher temps. than the CV3oxB lithol. The presence of the reduced and CV3oxA lithologies in the Vigarano breccia and CV3oxA and CV3oxB lithologies in the Mokoia breccia indicates that all CV3 chondrites came from one heterogeneously altered asteroid. The metamorphosed clasts in Mokoia may be rare samples of the hotter interior of the CV asteroid. The alteration features observed in the oxidized CV3 chondrites resulted from the fluid-rock interaction in an asteroid during progressive metamorphism of a heterogeneous mixture of ices and anhydrous materials mineralogically similar to the reduced CV3 chondrites.

CC 53-9 (Mineralogical and Geological Chemistry)

REFERENCE COUNT: 94 THERE ARE 94 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 10 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:239171 HCAPLUS

DOCUMENT NUMBER: 128:310121

TITLE: Microporous crystalline silicoaluminophosphate zeolites and **catalytic** materials, their manufacture, and their use in the manufacture of olefins from methanol

INVENTOR(S): Wendelbo, Rune; Akporiaye, Duncan E.; Andersen, Anne; Dahl, Ivar Martin; Mostad, Helle Brit; Fuglerud, Terje; Kvisle, Steinar

PATENT ASSIGNEE(S): Norsk Hydro Asa, Norway; Wendelbo, Rune; Akporiaye, Duncan E.; Andersen, Anne; Dahl, Ivar Martin; Mostad, Helle Brit; Fuglerud, Terje; Kvisle, Steinar

SOURCE: PCT Int. Appl., 34 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9815496	A1	19980416	WO 1997-NO272	19971008
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
NO 9604276	A	19980414	NO 1996-4276	19961009
NO 304108	B1	19981026		
CA 2268250	AA	19980416	CA 1997-2268250	19971008
AU 9745773	A1	19980505	AU 1997-45773	19971008
AU 714771	B2	20000113		
BR 9711594	A	19990824	BR 1997-11594	19971008
EP 946412	A1	19991006	EP 1997-944230	19971008
EP 946412	B1	20020626		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
CN 1239930	A	19991229	CN 1997-180440	19971008
RU 2162055	C1	20010120	RU 1999-109030	19971008
AT 219757	E	20020715	AT 1997-944230	19971008
ES 2179372	T3	20030116	ES 1997-944230	19971008
US 6334994	B1	20020101	US 1999-284182	19990610

PRIORITY APPLN. INFO.:			
	NO 1996-4276	A	19961009
	WO 1997-NO272	W	1997

1008

AB After calcination, the **catalysts** have general **formula** HwSixAlyPzO2 (w, x = 0.01-0.05; y, z = 0.4-0.6) and contain both an AEI and a CHA phase and have x-ray diffraction pattern as presented. The **catalysts** have longer service life than prior-art **catalyst.** In the manufacture of the **catalysts** from a mixture of sources of SiO2, Al2O3, and P2O5 and an organic templating agent by combining at least part of the Al source and P source with water and the Si source and the templating agent, 2, nut not all 3 of the following steps are included (1) addition of water, H3PO4 and, optionally, HCl, to Al(Me2CHO)3 on by one under agitation, (2) keeping the siO2 content <5%, i.e., Si/(Al + P + Si) <0.05, and (3) reducing the amount of liquid after addition of the SiO2 source.

IT **206555-05-7P**, Aluminum oxide phosphate silicate (Al0.54O0.16(PO4)0.41(SiO4)0.05) **206555-06-8P**, Aluminum oxide phosphate silicate (Al0.56O0.22(PO4)0.41(SiO4)0.04) **206555-07-9P**, Aluminum metaphosphate oxide silicate (Al0.45(PO3)0.53O0.33(SiO4)0.02) **206555-09-1P**, Aluminum oxide phosphate silicate (Al0.55O0.13(PO4)0.37(SiO4)0.1)
(**catalyst**, manufacture of; for olefin manufacture from methanol)

RN 206555-05-7 HCAPLUS

CN Aluminum oxide phosphate silicate (Al0.54O0.16(PO4)0.41(SiO4)0.05) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	0.16	17778-80-2
O4Si	0.05	17181-37-2
O4P	0.41	14265-44-2
Al	0.54	7429-90-5

RN 206555-06-8 HCAPLUS

CN Aluminum oxide phosphate silicate (Al0.56O0.22(PO4)0.41(SiO4)0.04) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	0.22	17778-80-2
O4Si	0.04	17181-37-2
O4P	0.41	14265-44-2
Al	0.56	7429-90-5

RN 206555-07-9 HCAPLUS

CN Aluminum metaphosphate oxide silicate (Al0.45(PO3)0.53O0.33(SiO4)0.02) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	0.33	17778-80-2
O4Si	0.02	17181-37-2
O3P	0.53	15389-19-2
Al	0.45	7429-90-5

RN 206555-09-1 HCAPLUS

CN Aluminum oxide phosphate silicate (Al0.55O0.13(PO4)0.37(SiO4)0.1) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	0.13	17778-80-2
O4Si	0.1	17181-37-2
O4P	0.37	14265-44-2
Al	0.55	7429-90-5

IC ICM C01B025-45
ICS C01B033-26; B01J029-02; B01J020-16; B01J029-06
CC 49-4 (Industrial Inorganic Chemicals)
Section cross-reference(s): 45
ST **SAPO** silicoaluminophosphate zeolite **catalyst**; methanol olefin zeolite **catalyst**
IT Silicoaluminophosphate zeolites
(**catalysts**, manufacture of; for olefin manufacture from methanol)
IT Alkenes, preparation
(manufacture of, from methanol; silicoaluminophosphate zeolite **catalysts** manufacture for)
IT **206555-05-7P**, Aluminum oxide phosphate silicate (Al0.54O0.16(PO4)0.41(SiO4)0.05) **206555-06-8P**, Aluminum oxide phosphate silicate (Al0.56O0.22(PO4)0.41(SiO4)0.04) **206555-07-9P**, Aluminum metaphosphate oxide silicate (Al0.45(PO3)0.53O0.33(SiO4)0.02) **206555-09-1P**, Aluminum oxide phosphate silicate (Al0.55O0.13(PO4)0.37(SiO4)0.1)
(**catalyst**, manufacture of; for olefin manufacture from methanol)
IT 7631-86-9, Ludox LS, uses
(colloidal; in **SAPO** 18 and 34 **catalyst** manufacture for olefin manufacture from methanol)
IT 555-31-7, Aluminum triisopropoxide 7647-01-0, Hydrochloric acid, reactions 7664-38-2, Phosphoric acid, reactions
(in **SAPO** 18 and 34 **catalyst** manufacture for olefin manufacture from methanol)
IT 67-56-1, Methanol, processes
(silicoaluminophosphate zeolite **catalysts** manufacture for olefin manufacture from)
IT 77-98-5, Tetraethylammonium hydroxide
(templating agent; in **SAPO** 18 and 34 **catalyst** manufacture for olefin manufacture from methanol)
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 11 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1998:235989 HCAPLUS
DOCUMENT NUMBER: 128:324204
TITLE: Biochemical evolution. I. Polymerization on internal, organophilic silica surfaces of dealuminated zeolites and feldspars
AUTHOR(S): Smith, Joseph V.
CORPORATE SOURCE: Department of Geophysical Sciences and Center for Advanced Radiation Sources, University of Chicago, Chicago, IL, 60637, USA
SOURCE: Proceedings of the National Academy of Sciences of the United States of America

(1998), 95(7), 3370-3375
CODEN: PNASA6; ISSN: 0027-8424
PUBLISHER: National Academy of Sciences
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Catalysis at mineral surfaces might generate replicating biopolymers from simple chems. supplied by meteorites, volcanic gases, and photochem. gas reactions. Many ideas are implausible in detail because the proposed mineral surfaces strongly prefer water and other ionic species to organic ones. The mol. **sieve** silicalite (Union Carbide; = Al-free Mobil ZSM-5 **zeolite**) has a three-dimensional, 10-ring channel system whose elec. neutral Si-O surface strongly adsorbs organic species over water. Three -O-Si tetrahedral bonds lie in the surface, and the fourth Si-O points inwards. In contrast, the outward Si-OH of simple quartz and feldspar crystals generates their ionic organophobicity. The ZSM-5-type **zeolite** mutinaite occurs in Antarctica with boggsite and tschernichite (Al-analog of Mobil Beta). Archean mutinaite might have become de-aluminated toward silicalite during hot/cold/wet/dry cycles. **Catalytic activity** of silicalite increases linearly with Al-OH substitution for Si, and Al atoms tend to avoid each other. Adjacent organophilic and catalytic Al-OH regions in nanometer channels might have scavenged organic species for catalytic assembly into specific polymers **protected** from prompt photochem. destruction. Polymer migration along weathered silicic surfaces of micrometer-wide channels of feldspars might have led to assembly of replicating catalytic biomols. and perhaps primitive cellular organisms. Silica-rich volcanic glasses should have been abundant on the early Earth, ready for crystallization into **zeolites** and feldspars, as in present continental basins. Abundant chert from weakly metamorphosed Archean rocks might retain microscopic clues to the proposed mineral adsorbent/catalysts. Other framework silicas are possible, including ones with levo/dextro one-dimensional channels. Organic mols., transition-metal ions, and P occur inside modern feldspars.

CC 53-1 (Mineralogical and Geological Chemistry)
Section cross-reference(s): 6

REFERENCE COUNT: 167 THERE ARE 167 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 12 OF 27 HCAPLUS

ACCESSION NUMBER: 1996:427439 HCAPLUS
DOCUMENT NUMBER: 125:91727
TITLE: Mineralogy of carbonaceous chondrite clasts in HED achondrites and the Moon

AUTHOR(S): Zolensky, Michael E.; Weisberg, Michael K.; Buchanan, Paul C.; Mittlefehldt, David W.
CORPORATE SOURCE: Earth Science and Solar System Exploration Division, NASA Johnson space Center, Houston, TX, 77058, USA

SOURCE: Meteoritics & Planetary Science (1996), 31(4), 518-537
CODEN: MPSCFY; ISSN: 1086-9379
PUBLISHER: Meteoritical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The majority of the carbonaceous chondrite clasts found in

howardites, eucrites and diogenites (HED meteorites) are CM2 material, a lesser proportion is CR2 material, and other rare types are present. A single clast that was found on the Moon and called the Bench Crater meteorite is apparently shocked DM1 material. The CM2 clasts are matrix supported mixts. of olivine-pyroxene-phyllosilicate-sulfide bearing aggregates, loose olivines and pyroxenes, sulfides, carbonates, and sinuous spinel-phyllosilicate-diopside calcium-aluminum-rich inclusions (**CAIs**). Magnetite and metal are rare. Some aggregates have fine-grained rims of material resembling matrix. The opaque, fine-grained matrix consists predominantly of serpentine of extremely variable composition and sulfides; tochilinite is occasionally present. The trace element data for one Jodzie clast from this study and the average of similar clasts from Kapoeta support a CM classification; volatiles are depleted relative to CI and enriched relative to CR material. The CR2 clasts are found (in small nos.) in only 4 howardites: Bholghati, Jodzie, Kapoeta and Y793497. Petrog., they are matrix-supported mixts. of olivine aggregates (sometimes containing sulfides), loose olivines, pyrrhotite, pentlandite, low-Ca pyroxene (minor), hedenbergite (rare), kamacite (rare and only found within olivine), Ca-carbonates and abundant magnetite framboids and plaquets. Phyllosilicates are fine-grained and largely confined to matrix; they are mixts. of serpentine and **saponite.** The matrix of CR2 clasts also contains pyrrhotite, pentlandite, chromite and a significant fraction of poorly-crystalline material with the same bulk composition as matrix phyllosilicate. There is evidence of heating in a substantial number of clasts, both CM2 and CR2, including: (1) corrugated serpentine flakes, (2) pseudomorphs of anhydrous ferromagnesian material after flaky phyllosilicates, and (3) hedenbergite rims on calcite. Whereas the timing of the hedenbergite rims is debatable, the destruction of phyllosilicates clearly occurred at a late stage, plausibly during impact onto the HED asteroid(s) and Moon, and required peak heating temps. on the order of 400°. In general, CM2 material was the most common carbonaceous chondrite lithol. impacting the HED asteroids (with howardites and eucrites taken together), as it is for the Earth today. A total of 61 out of 75 carbonaceous chondrite clasts from HED meteorites belong to the CM clan, petrol. grade 2. This is also supported by published siderophile and volatile element data on howardites, eucrites and diogenites that are taken to indicate that CM-like materials were the most common impactors on the HED asteroid(s). The ratio of CR/CM clasts in HED asteroids is essentially the same as for modern falls at Earth. This may indicate that the ratio of disaggregated CM2 to CR2 asteroidal material has been approx. constant throughout the history of the Solar system. Results are also compatible with type-2 carbonaceous chondrites being equivalent to or from the same source as the material that originally accreted to form the HED asteroid.

CC 53-9 (Mineralogical and Geological Chemistry)

L19 ANSWER 13 OF 27 HCAPLUS

ACCESSION NUMBER: 1992:615850 HCAPLUS
DOCUMENT NUMBER: 117:215850
TITLE: Pillared interlayered rectorite microspheric cracking catalyst
AUTHOR(S): Guan, Jingjie; Liu, Qinglin; Yu, Zhiqing; Qi, Chunming; Min, Enze; Wang, Xieqing
CORPORATE SOURCE: Res. Inst. Pet. Process., China Petro-Chem. Corp., Beijing, Peop. Rep. China

SOURCE: Proc. Int. Conf. Pet. Refin. Petrochem. Process. (1991), Volume 3, 1255-61. Editor(s): Hou, Xianglin. Int. Acad. Publ.: Beijing, Peop. Rep. China. CODEN: 58CEA7
DOCUMENT TYPE: Conference
LANGUAGE: English

AB The **catalytic activity** of pillared interlayered rectorite (PIR, a novel microspheric cracking catalyst crosslinked with Al chlorohydroxide) was slightly lower than that of com. rare-earth Y **zeolite** (REY) catalysts however it has wide pore structure of pillared clay mol. **sieves** which makes it suitable for cracking heavy oil residual feedstocks. The catalyst has an excellent hydrothermal stability far superior to early pillared clay products and was even better than that of com. REY catalysts. Gas and gasoline selectivity and quality of the light cycle oil was better, but coke selectivity was lightly higher than that of com. REY catalyst. The PIR catalyst had an attrition resistant **index**, apparent bulk d., and particle size distribution equal to the com. microspheric REY catalysts.

CC 51-6 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 67

L19 ANSWER 14 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1990:521490 HCAPLUS
DOCUMENT NUMBER: 113:121490
TITLE: Larger pore molecular sieves of controlled activity
INVENTOR(S): Chu, Pochen
PATENT ASSIGNEE(S): Mobil Oil Corp., USA
SOURCE: U.S., 9 pp. Cont.-in-part of U.S. Ser. No. 179,592, abandoned. CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
US 4912073	A	19900327	US 1988-257607		19881014
US 5047141	A	19910910	US 1990-465840		19900116

PRIORITY APPLN. INFO.:	US 1984-631430 B2	19840716
	US 1986-829677 B2	19860214
	US 1987-179592 B2	19871007

US 1988-257607 A3 1988
1014

AB A method for controlling the **catalytic activity** of a composition comprising a high-SiO2-content, larger pore, crystalline mol. **sieve** selected from crystalline **zeolites**, pillared clays and silicoaluminophosphates, and characterized by a Constraint **Index** of .ltorsim.2.5, which composition contains from .apprx.0.1 to .apprx.2.5 weight% of framework B, comprises: (1) contacting the crystalline mol. **sieve** with an aqueous solution of the salt of a metal selected from Groups IVA, IB, IIB, IVB and VIII, the contacting being under conditions effective to remove B from the crystalline mol. **sieve**; and (2) converting the contacted crystalline mol. **sieve** to the H form.

IC ICM B01J021-16
ICS B01J029-06

INCL 502085000

CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)

L19 ANSWER 15 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1990:518655 HCAPLUS
DOCUMENT NUMBER: 113:118655
TITLE: Aqueous alteration in the Kaba CV3 carbonaceous chondrite
AUTHOR(S): Keller, Lindsay P.; Buseck, Peter R.
CORPORATE SOURCE: Dep. Geol., Arizona State Univ., Tempe, AZ, 85287-1404, USA
SOURCE: Geochimica et Cosmochimica Acta (1990), 54(7), 2113-20
CODEN: GCACAK; ISSN: 0016-7037
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The Kaba CV3 carbonaceous chondrite has undergone pervasive aqueous alteration that produced Fe-bearing **saponite** in chondrules and matrix. **Saponite** in chondrules is coarse-grained and shows a crystallog. orientation relationship such that c* of **saponite** parallels a* of enstatite. Matrix **saponite** exhibits a variety of textures including coarse- and fine-grained clusters, isolated packets, and sparse, lamellar replacements of Fe-rich olivine. The coarse-grained clusters were probably derived from altered chondrules that were fragmented during regolith gardening. The fine-grained clusters and isolated packets formed from material released during the partial dissoln. of matrix silicates. Much **saponite** is associated with submicron Fe-Ni sulfides, suggesting that conditions were not oxidizing during aqueous alteration. The alteration occurred after accretion and on the Kaba parent body because **saponite** is present throughout the sample. By analogy to terrestrial occurrences, the **saponite** in Kaba probably formed at low temps. (<100°). The distribution of **saponite** in Kaba is determined by local bulk compns.; enstatite in chondrules has been altered more extensively than the fine-grained olivine in matrix. The alteration products in Kaba resemble those in other aqueously altered carbonaceous chondrites such as the Mokoia CV3 chondrite and in certain CI chondrites. There are, however, significant differences. Kaba lacks the abundant high-Al phyllosilicates in chondrules and in **CAIs** (Ca-Al-rich inclusions) reported from Mokoia; also lacking in Kaba

is the serpentine and ferrihydrite found in Orgueil. Alteration products in Kaba matrix differ from those in CO3 chondrites even though their prealteration mineralogies were similar.

CC 53-9 (Mineralogical and Geological Chemistry)
ST carbonaceous chondrite aq alteration Kaba; **saponite** chondrule carbonaceous chondrite Kaba
IT Meteorites
(chondrites, carbonaceous, aqueous alteration in, formation of **saponite** in relation to, of Kaba)
IT 1319-41-1P, **Saponite**
(formation of, by aqueous alteration, in chondrule and matrix, of Kaba CV3 carbonaceous chondrite)

L19 ANSWER 16 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1988:480562 HCAPLUS
DOCUMENT NUMBER: 109:80562
TITLE: Structural, acidic and **catalytic** properties of **SAPO**-11 molecular sieves
AUTHOR(S): Khouzami, R.; Coudurier, G.; Mentzen, B. F.; Vedrine, J. C.
CORPORATE SOURCE: Inst. Rech. Catal., CNRS, Villeurbanne, 69622, Fr.
SOURCE: Studies in Surface Science and Catalysis (1988), 37(Innovation Zeolite Mater. Sci.), 355-63
CODEN: SSCTDM; ISSN: 0167-2991
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Polycryst. silicoaluminophosphates of **SAPO**-11 type were synthesized with variable Si/(Al+P) ratios. The general **formula** was HxSixAl20P20-xO80, with x = 0-4. Calcination increased the crystallinity of the samples. The variations of the unit cell volume with the Si amount were too low to draw conclusions concerning the actual insertion of Si into the framework. Part of Si was located at the surface, presumably as an amorphous SiO2 layer. The samples as observed by temperature-programmed desorption of NH3 and pyridine adsorption exhibited a Lewis acidity of medium strength which resulted in poor **catalytic** properties. All samples were inactive in hexane cracking and active in MeOH conversion. They were active and relatively stable in isopropanol dehydration and double shift bond isomerization of 1-butene.
IT **115867-12-4**, Aluminum phosphate silicate (Al20(PO4)16-20(HSiO4)0-4)
(**catalysts**, structure and surface acidity of, activity in relation to)
RN 115867-12-4 HCAPLUS
CN Aluminum phosphate silicate (Al20(PO4)16-20(HSiO4)0-4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO4Si	0 - 4	28947-70-8
O4P	16 - 20	14265-44-2
Al	20	7429-90-5

CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
Section cross-reference(s): 22

ST silicoaluminophosphate **catalyst** structure acidity
IT Adsorption
(of ammonia and pyridine, on silicaluminophosphate **catalysts**, surface acidity in relation to)
IT Crystallinity
(of silicoaluminophosphate **catalysts**, effect of calcination on)
IT **Catalysts** and **Catalysis**
(silicoaluminophosphates, structure and acidity of, activity in relation to)
IT Heteropoly acids
(aluminophosphatosilicates, **catalysts**, structure and acidity of, activity in relation to)
IT 110-54-3, Hexane, properties 110-86-1, Pyridine, properties 7664-41-7, Ammonia, properties 7727-37-9, Nitrogen, properties
(adsorption of, on silicoaluminophosphate **catalysts**, surface acidity in relation to)
IT **115867-12-4**, Aluminum phosphate silicate (Al20(PO4)16-20(HSiO4)0-4)
(**catalysts**, structure and surface acidity of, activity in relation to)

L19 ANSWER 17 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1987:579913 HCAPLUS
DOCUMENT NUMBER: 107:179913
TITLE: Fluid cracking catalyst and method of making same
INVENTOR(S): Andrews, Robert W.; Himpsl, Francis L.; Speronello, Barry K.
PATENT ASSIGNEE(S): Engelhard Corp., USA
SOURCE: Eur. Pat. Appl., 31 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
EP 234120	A1	19870902	EP 1986-309994		19861222
EP 234120	B1	19891025			
R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE					
US 4699893	A	19871013	US 1985-811201		19851220
CA 1273330	A1	19900828	CA 1986-525425		19861216
JP 62191047	A2	19870821	JP 1986-303615		19861219
AT 47536	E	19891115	AT 1986-309994		19861222
PRIORITY APPLN. INFO.:			US 1985-811201	A	19851220

US 1983-532346 A2 1983 0915

US 1985-727985 A2 1985 0429

EP 1986-309994 A 1986 1222

AB Mixts. of Na silicate and Na **zeolite** crystals are ion exchanged with NH4+ solns. at initial pH 4.5-5.0 followed by ion exchange at pH 2.0-3.5. The process is especially suitable for preparation of NaY (**zeolite**)-based petroleum cracking catalysts. Na **zeolite**-Na silicate microspheres, containing 18.2 weight% Na2O, were contacted twice (for 1 h each at 82°) with aqueous NH4NO3 at pH 4.5-5.0 (adjusted by concentrated HNO3) and then 3 times (for 1 h each at 82°) at pH 2.4-2.7. The catalyst was impregnated with aqueous rare earth oxide (ReO) at 82° and pH 3.0-3.5 for 1 h. The final catalyst, containing 0.35 weight% Na2O and 2.94 weight% ReO, had an RMA **catalyst activity index** of 102 (relative to standard HEZ 53 com. catalyst), vs. 77 for a catalyst prepared by cation exchange at pH 2.4-2.7 only.

IC ICM B01J029-06
ICS C10G011-05

ICA B01J029-08; B01J037-30

CC 51-6 (Fossil Fuels, Derivatives, and Related Products)

ST petroleum cracking catalyst cation exchange; pH control ammonium exchange **zeolite**; **zeolite** petroleum cracking cation exchange

IT Cation exchange
(of sodium oxide-sodium **zeolite** mixts., with ammonium, pH control in, for preparation of petroleum cracking catalysts)

IT **Zeolites**, uses and miscellaneous
(NaY, ammonium-exchanged, pH control in, for preparation of petroleum cracking catalysts)

IT Petroleum refining catalysts
(cracking, ammonium-exchanged **zeolite**-silicate mixts., preparation of, pH control in)

IT 1313-59-3, Sodium oxide (Na2O), uses and miscellaneous
(cation exchange and removal of, in preparation of **zeolite** petroleum cracking catalysts)

IT 6484-52-2, Ammonium nitrate, properties
(cation exchange with, for preparation of **zeolite** petroleum cracking catalysts)

IT 1335-30-4
(**zeolites**, NaY, ammonium-exchanged, pH control in, for preparation of petroleum cracking catalysts)

L19 ANSWER 18 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1987:198693 HCAPLUS
DOCUMENT NUMBER: 106:198693
TITLE: Crystalline silicophosphoaluminate from a two phase medium
INVENTOR(S): Derouane, Eric G.; Von Ballmoos, Roland
PATENT ASSIGNEE(S): Mobil Oil Corp., USA

SOURCE: U.S., 9 pp. Cont.-in-part of U. S. Ser. No. 562,778, abandoned.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4647442	A	19870303	US 1984-642966	1984 0821
PRIORITY APPLN. INFO.:			US 1983-562778 A2	1983 1219

OTHER SOURCE(S): CASREACT 106:198693

AB Crystalline silicoaluminophosphate mol. **sieve** material (designated MCM-2, structurally analogous to the **zeolite** chabazite) is prepared solvothermally from a 2-phase reaction mixture consisting of an organic phase immiscible with water and containing a Si source, an aqueous phase containing dissolved or partially dissolved Al phosphate (type AlPO4-5), and a Et4N+ directing agent. The reaction mixture is maintained at crystallization conditions until the product forms, and the product is separated These materials are characterized by a given x-ray diffraction (XRD) pattern and show a variety of interesting catalytic properties. A reaction mixture was prepared with an organic phase consisting of hexanol 60 and Si(OEt)4 10 g, and an aqueous phase of 85% H3PO4 23.1, Al2O3 10, 25% Pr4NOH 84, and water 30 g, for an overall composition Si 10.8, P 45.0, and Al 44.2 atomic%. The mixture was heated at 50°/h to 150° and maintained at that temperature for 168 h, after which the crystalline product was separated, washed, and dried. The product contained Si 17.5, P 37.2, and Al 45.4 atomic%, had an XRD pattern typical of MCM-2, Alpha value (**catalytic** cracking **activity index**) 7.0, constraint **index** >100 (i.e. small pore size), and was an active catalyst for, e.g., alkylation of toluene.

IC ICM C01B015-16
ICS C01B033-28

INCL 423306000

CC 49-4 (Industrial Inorganic Chemicals)
Section cross-reference(s): 45, 51, 67

L19 ANSWER 19 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1984:607603 HCAPLUS
DOCUMENT NUMBER: 101:207603
TITLE: Chemical constituents of Japanese ginseng (Panax japonicus). (II)
AUTHOR(S): Cai, Ping; Xia, Zhuoyin
CORPORATE SOURCE: Dep. Pharm., Sichuan Med. Coll., Chengdu, Peop. Rep. China
SOURCE: Zhongcaoyao (1984), 15(6), 241-6
CODEN: CTYAD8; ISSN: 0253-2670
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

AB Four **saponin** constituents, designated as Pjs-2, -3, -4, and -6, were isolated from the root of Japanese ginseng (P.

japonicus) according to the method of P. **Cai** et al. (1982). Spectral anal. (IR, NMR, and mass spectroscopy) and physicochem. consts. determination identified Pjs-2 as 3-O-(β-D-xylopyranosyl(1→2)-β-D-glucuronopyranosyl)oleanolate 28-O-β-D-glucopyranoside, Pjs-3 as chikusetsusaponin IV (or araloside A), Pjs-4 as 3-O-(α-L-arabinopyranosyl)oleanolate 28-O-β-D-glucopyranoside, and Pjs-6 as ginsenoside Re.

CC 11-1 (Plant Biochemistry)

ST ginseng **saponin** compn; chikusetsusaponin IV ginseng; ginsenoside Re ginseng

IT **Saponins**
(from Japanese ginseng root)

IT Ginseng
(P. japonicus, **saponins** from root of)

L19 ANSWER 20 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1982:608108 HCAPLUS
DOCUMENT NUMBER: 97:208108
TITLE: Effect of Daisaikotoh (Da-**Cai**-Hu Tang) and saikosaponins on experimental hyperlipemia
AUTHOR(S): Saitoh, Takashi
CORPORATE SOURCE: Dep. Pharmacol., Tokyo Med. Coll., Tokyo, Japan
SOURCE: Tokyo Ika Daigaku Zasshi (1982), 40(4), 517-29
CODEN: TIDZAH; ISSN: 0040-8905
DOCUMENT TYPE: Journal
LANGUAGE: Japanese

AB The mechanism of action of Daisaikotoh (Da **Cai**-Hu Tang), a Chinese herbal **formulation**, in the treatment of cholelithiasis and obesity was studied. Exptl. cholelithiasis and hyperlipemia were produced in male hamsters by administration of cholesterol lithogenic diets continuously for 27 days. Daisaikotoh was administered orally to some of them at the same time. Data from this experiment showed that Daisaikotoh tends to inhibit the formation of gallstones and the increase of serum triglyceride and cholesterol induced by lithogenic diets. **Saponin** and nonsaponin fractions extracted from Bupleuri radix (a component of Daisaikotoh) were administered to mice orally 30 min before the oral administration of [1-14C]-triolein, and the accumulated blood levels of 14C radioactivity was counted at regular intervals. The exptl. data showed that saikosaponins inhibit, but that the nonsaponin fraction does not inhibit triglyceride absorption. Oral administration of butter also increased the serum triglyceride levels in rats; i.v. administration of saikosaponins inhibited the increase of serum triglyceride levels in rats during butter treatment. This was mainly due to an inhibition of increases in the level of chylomicron. In addition, the increases of free fatty acid and post heparin lipolytic activity levels were inhibited by the saikosaponins. Apparently, saikosaponins inhibit the absorption of triglyceride from the digestive tract, but do not accelerate subsequent triglyceride metabolism

CC 1-10 (Pharmacology)

IT **Saponins**
(saiko-, biliary calculi-inhibiting and hypolipemic activity of, mechanism of)

L19 ANSWER 21 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1975:482147 HCAPLUS
DOCUMENT NUMBER: 83:82147
TITLE: Preparation of NaA **zeolite** from kaolin from the Taphinh (Lao **cai**) region
AUTHOR(S): Nguyen Duc Chau; Nguyen Ba Xuan; Le Nhu Thanh
CORPORATE SOURCE: Phong Hoa Ly, Vien Hoa Hoc Cong Nghiep, N. Vietnam
SOURCE: Tap San Hoa Hoc (1974), 12(4), 3-6
CODEN: HOAGAP; ISSN: 0439-2922
DOCUMENT TYPE: Journal
LANGUAGE: Vietnamese
AB Title only translated.
CC 49-4 (Industrial Inorganic Chemicals)
ST **zeolite** prepn kaolin
IT **Zeolites**
(NaA, preparation of, from kaolin from North Vietnam)
IT Kaolin, uses and miscellaneous
(**zeolite** NaA from, from North Vietnam)

L19 ANSWER 22 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1968:97301 HCAPLUS
DOCUMENT NUMBER: 68:97301
TITLE: Silica-alumina cracking catalysts
PATENT ASSIGNEE(S): W. R. Grace and Co.
SOURCE: Brit., 5 pp.
CODEN: BRXXAA
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 1085758		19671004	GB	
DE 1542194			DE	
FR 1508030			FR	
US 3423332		19690000	US	

PRIORITY APPLN. INFO.: US 1963 1213

AB Addition of mol. **sieves** (**zeolites**) to SiO2Al2O3 **catalysts** improves both **activity** and stability. The catalyst containing 5-45 weight % Al2O3 is heated to 30-100° in the presence of an alkali metal hydroxide (preferably Na or K) or N base to introduce tetrahedral units into the amorphous aluminosilicate. The N base may be pyridine, piperidine, tetramethylammonium hydroxide or tetrabutylammonium hydroxide. Excess alkali is removed by ion exchange and excess base is removed by heating at 300-1500°. Thus, 236.6 g. SiO2Al2O3 cracking catalyst containing 13% active Al2O3 was added to a solution of 21.7 g. NaOH in 696 g. H2O. The temperature was raised to 40° and kept there for 18 hrs. The catalyst precursor was filtered, washed, and dried at 110° for 18 hrs. The empirical **formula** was 0.83Na2O.1.0Al2O3.10.9SiO2.xH2O. The catalyst was washed sparingly with H2O and then base-exchanged 3 times at 50° with .apprx.4.8 weight % NH4Cl solution After washing with water, the catalyst was dried at 110°. The finished

catalyst had a surface area of 441 m.2/g. and a pore volume of 0.60 cc./g., both determined by the B.E.T. method.

IC B01J

CC 51 (Petroleum, Petroleum Derivatives, and Related Products)

L19 ANSWER 23 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1968:61301 HCAPLUS

DOCUMENT NUMBER: 68:61301

TITLE: Diesel oil deparaffination by means of synthetic zeolites with molecular sieve properties of the 5A type

AUTHOR(S): Tunescu, R. C.; Caras, R.

SOURCE: Petrol si Gaze (1967), 18(5), 284-7 CODEN: PGAZAC; ISSN: 0031-6350

DOCUMENT TYPE: Journal

LANGUAGE: Romanian

AB A gas oil (freezing point 4°, n20D 1.4742, Q204 0.847, I.D. (diesel **index**) 57) was deparaffinized by 2 methods: I adsorption of the n-paraffinic hydrocarbons on synthetic **zeolites** with properties of 5 A. mol. **sieves** and II selective catalysis, in which the n-paraffinic hydrocarbons were decomposed into gases, using the same **zeolites** as catalysts. In both cases the freezing (congealing) point was lowered by .apprx.35°. **Zeolite** (0.5-0.8 mm.) (45 g.) was introduced, activating by passing N for 3 hrs. at 350°, and absorbing from the liquid passed at a volumetric rate of 1/hr., at 150°. Passing 1 volume gas oil upon 2 weight parts of **zeolite**, the freezing point was reduced by 27° and the I.D. remained at an acceptable value, the n-paraffin content decreasing by 8 units. Selective catalysis (because of the small pore size, only n-paraffins penetrated and were cracked to gases) was effected on a fixed bed of **zeolite** (100 g.) in the shape of cylindric pellets (5 + 3 mm. diameter) passing the gas oil at 425-500°, at 0.5 g./g. hr. At one temperature (475°) a polar substance, (NH3), was added. The catalyst was activated in a N current at 400°. The fractions obtained were analyzed for S content, I.D., freezing point, n2D; the amount of resulting light fraction and the coke produced were also measured. The decrease of the freezing point was proportional to the temperature, a decrease of 35° being attained at 450°. The n2D of the fractions was a satisfactory criterion for the determination of the moment of catalyst deactivation by deposition of coke. The presence of NH3 reduced temporarily the **catalytic activity** . The analyses showed a higher content of H2, CH4, C2H6, C2H4, C3H6, and C4H8, and a lower iso-C4H10 content as compared to the products of catalytic cracking effected with normal aluminosilicates; this was attributed to the continued decomposition of the branched structure hydrocarbons formed in the 11 A. channels of the catalyst. The degree of desulfurization was maximum at 475° (at which temperature the I.D. was still satisfactory), and was partial only, since only normal structure S compds. were transformed. The amount of liquid fraction formed (200° final) was only <4%, contrary to normal catalytic cracking, indicating preferential gas formation.

CC 51 (Petroleum, Petroleum Derivatives, and Related Products)

L19 ANSWER 24 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1967:87343 HCAPLUS

DOCUMENT NUMBER: 66:87343

TITLE: Cracking catalysts of amorphous silica and alumina gels mixed with molecular sieves
PATENT ASSIGNEE(S): Esso Research and Engineering Co.
SOURCE: Neth. Appl., 26 pp.
CODEN: NAXXAN
DOCUMENT TYPE: Patent
LANGUAGE: Dutch
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
NL 6606201		19661107		
DE 1545283			DE	
FR 1553673			FR	
US 3558476		19710000	US	
PRIORITY APPLN. INFO.:			US	1965 0506

AB The expensive mol. **sieve** catalyst can be partially replaced by the conventional amorphous catalyst of Al2O3-SiO2 gel. The amorphous catalyst contains 13% Al2O3 and 87% SiO2. The mol. **sieve** catalyst is a crystalline **zeolite** having pore size of 7-13 A., and the chemical **formula** 0.9 ± 0.2M2O.Al2O3.xSiO2, in which M is H or a metal and x is 3-7. A SiO2/Al2O3 ratio >3:1 in the phys. mixture is preferable for selective, stable, and improved **activity** of the **catalyst.** Cation exchange (before or after mixing the Al2O3-SiO2 with the **zeolite**) is required to decrease the alkali metal oxides to <10%. The ratio of gel to **zeolite** generally is 30-90:10-70 weight %. The cracking temperature is 370-650°; the pressure, a few hundred atmospheric Fluidization of the catalyst is preferred. The catalyst/oil ratio is 5:1. All kinds of fuel oils, middle distillates, steam-cracked naphthas, etc., can be treated.

IC B01J

CC 51 (Petroleum, Petroleum Derivatives, and Related Products)

L19 ANSWER 25 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1966:74964 HCAPLUS
DOCUMENT NUMBER: 64:74964
ORIGINAL REFERENCE NO.: 64:14001a-c
TITLE: Isomerization of paraffinic hydrocarbons
INVENTOR(S): Rabo, Jule A.; Pickert, Paul E.; Boyle, James E.
PATENT ASSIGNEE(S): Union Carbide Corp.
SOURCE: 14 pp.
DOCUMENT TYPE: Patent
LANGUAGE: Unavailable
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 1207034		19651216	DE	
PRIORITY APPLN. INFO.:			US	1959

1230

AB Conversion of hydrocarbons, especially paraffinic hydrocarbons, such as C5H12 and C614, to branched-chain hydrocarbons, is accomplished by passing the hydrocarbons into a stream of H under proper conversion conditions and then bringing the stream into contact with a crystalline metal Al silicate **zeolite** mol. **sieve.** This mol. **sieve** is termed " **Zeolith** Y" and has the **formula** 0.9 ± 0.2Na2O.Al2O3.w SiO2.xH2O, in which w is 3-6 and x is 1-9 (Ger 1,098,929, CA 56, 6692c; Ger. 1,164,384, CA 62, 3689c). As a catalyst, a polyvalent cation of a Group VIII metal, such as Pt or Pd, is used. The **catalytic activity** of the mol. **sieve** depends on pore size, crystal structure, silicic acid/ Al2O3 ratio, and the type of cation in the structure. Since the pores must be large enough to allow the entrance of the mols. of initial reactants and the products, but small enough to restrain the entrance of larger mols., a pore size of 3-10 A. is most desirable. The crystalline **zeolites** have a much higher **catalytic activity** than noncryst. **zeolites** of the same content of chemicals. A SiO2-Al2O3 mole ratio of >3:1 is desirable for this process. The process is carried out at 300-420°, the temperature level being critical and dependent on the raw material used. The H/hydrocarbon mole ratio is preferably 2-5:1. The pressure used is preferably 21-41 atmospheric Straight-run fractions consisting solely of C5H12, C6H14, or appreciable amts. of ring compds. with side chains can be converted by this process. The products are useful as gasoline components.

IC C10G

CC 27 (Petroleum and Petroleum Derivatives)

L19 ANSWER 26 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1965:452498 HCAPLUS

DOCUMENT NUMBER: 63:52498

ORIGINAL REFERENCE NO.: 63:9512c-h

TITLE: Preparation of improved zeolites

PATENT ASSIGNEE(S): Esso Research and Engineering Co., Neth.

SOURCE: 18 pp.

DOCUMENT TYPE: Patent

LANGUAGE: Unavailable

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
NL 294141		19650412	NL	

PRIORITY APPLN. INFO.: US 1962 0706

AB By use of finely divided crystalline aluminosilicate **zeolite** as the bonding agent for coarser particles of **zeolite**, it is possible to obtain "extrudate", pellets, or fluidized powder with increased rate of adsorption, greater adsorption capacity, and higher **catalytic activity.** The general **formula** for the **zeolites** is yM2/nO.Al2O3.xSiO2, where M represents a metal or H, n the valence of M, 0.7 ≤ y < 1.1, and 2 < x < 12. Starting material may be com. available

zeolites (e.g., Linde Types 4A, 5A, 13X, 13Y) or synthetic **zeolites** prepared as follows: a mixture of colloidal silica (e.g., Ludox), NaOH, and Na aluminate after standing for about 24 hrs. is heated to 92-105° for 50-100 hrs. The crystalline product is separated from the mother liquor by decantation, then washed giving a crystalline material with av.particle size from 1 to 10 μ. In the reaction mixture the Na2O/SiO2 ratio for Types 4A, 5A, and 13X should be 0.7-1.5; for Type 13Y 0.28-0.45; SiO2/Al2O3 for Types 4A-5A should be 1.5-2.5; for Type 13X 2.5-5; and for Type 13Y 10-30. In the crystalline product the SiO2/Al2O3 value for Types 4A-5A is 1-2.2; for Type 13X 2-3; and for Type 13Y 5-6. The relatively coarse particles are reduced to fine powder (from 0.3 to less than 0.05 μ) in a ball mill or are "micronized" in a "Vibro-Energy Mill." The fine suspension of **zeolite** is spray dried at 99-260° or treated with hot oil (e.g., Nujol) or petroleum fraction giving minute, spherical particles which may be centrifuged or filtered out. The aqueous suspension may be mixed with coarser **zeolite** (particle μ size 1-300 μ) before extruding or drying at 370 to 595°. Preferably 15% or more of the finely divided **zeolite** serves as binding agent for the coarser particles. For catalytic use, it is important that the Na2O content be 2-6%. The ion exchange is done at 15-70°. The product may contain 3-20% of the catalytic cation. For comparative testing 4 extrudates were prepared as follows: (E1) A mixture of 100 g. Type 5A **zeolite** with 226 g. of slurry produced from Type 5A is extruded in a laboratory press at 700-1260 kg./cm.2 through an opening 1.5 mm. in diameter The extrudate is dried by heating to 540°. (E2) The slurry of finely divided Type 5A **zeolite** is dried, and 110 g. of the fraction which passes through a 50-mesh **sieve** is mixed with 150 g. of the original slurry. The mixture is dried and extruded as above. (E3) For an "ordinary" extrudate, 85 g. of Type 5A powder is mixed with 15 g. of bentonite and 60 g. of distilled H2O; the mixture is extruded and dried at 540°. (E4) Com. available extrudate of Type 5A **zeolite**, also heated to 540°, is used. By use of n-heptane for adsorption studies, the isotherms show that E1 and E2 have a greater adsorption capacity than E4 by 5-10% (which is attributed to the fact that E1 and E2 do not have foreign material present as bonding agent). At low pressure of n-heptane, E1 and E2 show faster adsorption than E4. In terms of pellet strength, E2 is measured at 0.9 kg. as compared with 1.35 kg. for E3 (which is considered adequate). To show that the absence of foreign bonding materials may avoid unwanted side reactions, 5-g. samples of the extrudates were exposed to propene for 2 hrs. at 121° and 1 atmospheric pressure (gas velocity about 15 1./hr.); then to a stream of N (30 1./hr.) for 30 min. Analysis showed residual C content of E2 0.3, E3 0.9, and E4 0.6%.

IC C01B

CC 17 (Industrial Inorganic Chemicals)

L19 ANSWER 27 OF 27 HCAPLUS

ACCESSION NUMBER: 1915:4817 HCAPLUS
DOCUMENT NUMBER: 9:4817
ORIGINAL REFERENCE NO.: 9:728a-c
TITLE: Oil-producing plants
AUTHOR(S): Voight
SOURCE: Chemische Revue ueber die Fett- und Harz-Industrie (1914), 21, 117-9; also in Ann. Rept. Inst. Appl. Bot. Hamburg

CODEN: CRFHAJ; ISSN: 0366-7960
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable

AB Mowrah or Illipe nuts have for several years been imported from East India, mainly the kernels of Illipe latifolia whose fat is recently said to be used for edible purposes. Its cake is not used as feeding stuff on account of high **saponin** content with strong hemolytic action. The hulled kernels of Aleurites triloba are apparently regularly imported under the name of candle or Bankul nuts (Br. India), Kemiri nuts (Java), Lumbang nuts (Philippines), Hot **cai** lai (Cochinchina) and Lama nuts (Samoa). Nhulo fruit (from Portuguese, W. Africa) contains relatively little oil and its kernels are difficult to remove. A thin-shelled variety of the oil palm are the Lisombe kernels (kamerun, Africa). Among American oil fruits, Attalea cohune is most promising. Manketti oil cake contains: 8.2 H2O, 2.6 ash, 6.2 protein, 1.85 fat, 46.85 carbohydrates, 34.3% crude fiber.

CC 27 (Fats, Fatty Oils, and Soap)